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FIG. 62.



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or "click-beetles," from their possession of the singular power of springing up into the air, when laid upon their backs, and thus recovering their proper position.

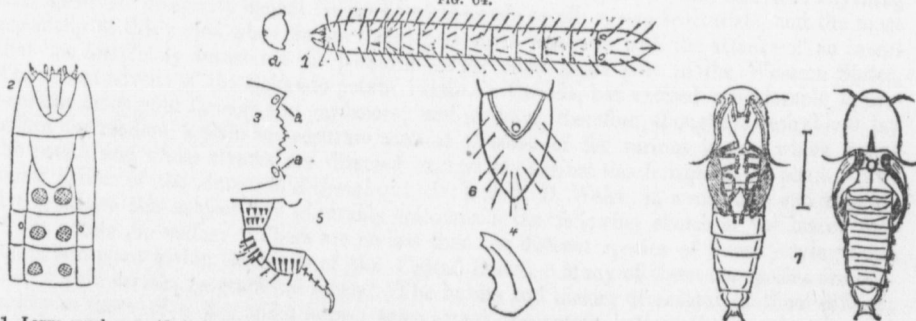
The wheat wire-worm, with which we are now more especially concerned, has long been known to farmers from the havoc it has frequently wrought in their fields of grain; it is only recently, however, that its natural history has been traced out. For the following account of its larval and pupal stages we are indebted to an article in the *Canadian Entomologist* (vol. iv., p. 2) by Mr. Pettit, a very careful and accurate observer. He relates as follows:—

"In the fall of the year 1870, so unusual an amount of damage was inflicted upon the wheat crops in this vicinity by this wire-worm that I was led to try and breed it to the perfect state, with a view to ascertaining what species it was the larva of. By digging about the roots of the wheat plants, I obtained about a dozen specimens, which were placed with a few wheat plants in a large flower pot, where they were kept supplied with food by planting occasionally a small quantity of wheat. With the first cold weather they ceased to eat, and were then placed in a sheltered situation until the return of warm weather in the spring, when they were restored to the breeding cage. They soon gave evidence of being alive, and possessing unimpaired appetites; their rapid consumption of the wheat plants rendered it necessary to renew the supply quite as often as before. They were fed in this way until the month of July, when my absence from home caused them to be neglected; on my return there was not a vestige of food left. Thinking that the worms had probably died of starvation, I paid no further attention to them until the 26th of August, when on removing a part of the earth from the pot, a pupa was disclosed, and on the 3rd of September the first imago appeared, which proved to be a specimen of *Agriotes Mancus* Say. As only two more specimens came out during the remainder of September, I turned the earth out of the pot and carefully examined it; the inspection revealed seven specimens of the imago in the little cells in which they had transformed, and one larva.

"Among the larvæ collected, I had noticed one less than half the size of the others, and evidently much younger, which would account for the one still in the larval state. It had attained, however, a size fully equal to that of the others when first brought in during the previous autumn; and hence I have formed the opinion that the larval state does not last longer than three years. This opinion has since been strengthened by the observation of a large number of larvæ, which appeared readily separable into two sizes, corresponding to those originally collected for breeding. Westwood, in his "Modern Classification of Insects," (vol. 1. 238), states respecting the larva of an allied species (*A. obscurus*) which, in Europe, feeds upon the roots of wheat, rye, oats, barley and grass, that according to Bjerkander, a Swedish Naturalist, "it is five years in arriving at the perfect state." Curtis, in his "Farm Insects," (page 161) makes a similar statement upon the same authority, and adds that those which he had himself feeding for ten or twelve months scarcely increased in size during the time. As already stated, however, I am of opinion that our species is by no means so long lived, but that it attains maturity in three years—a period quite long enough, the agriculturist must think, in which to inflict damage upon the crops."

The following illustration (Fig. 64), drawn by Dr. Horn, of Philadelphia, represents the wire-worm in its larval and pupal states:—

FIG. 64.



1. Larva much magnified, (natural size). 2. Underside of head and first three or thoracic segments, showing the parts of mouth and the position of first spiracle. 3. Margin of front; a. Position of antennae. 4. Mandible. 5. Leg. 6. Terminal segment beneath. 7. Pupa, upper and under view. The line between represents the natural size.